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Catcher and the Fry: Ecology, Power, and My Life with Salmon

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Catcher & the Fry; Ecology, Power, and My Life with the Pacific Salmon

Tails sweep rocks and gravel aside, sending clouds of sediment downstream. Round, orange orbs nestle into the debris, washed with cold water. Life settles in for its next round. Eventually, striped and silver streaks dart from eddy to eddy, until bursting to the ocean with spring. In the depths and at the surfaces, silver fish grow, feeding themselves and their surroundings. Until, again, they return back to their original birth grounds. Muscular bodies oscillating upstream with decreasing power and decay. Tails sweep the same rocks, and eggs fall again to the gravel, depositing the next generation.

Over the years as this process repeats itself, I myself have been similarly growing, and privy to witness some of the development. Salmon have fueled me in more ways than one. Salty smoked salmon snacks passed from my mom's lips, to her gut, through her blood, and to my growing body in her womb. A small toddler-Olivia would waddle the boardwalks at the Nature Center, pointing enthusiastically to the bright scarlet sockeye that circled the pools below. As a child, I would tag along with the adults on my dad's fishing trips, sometimes the only girl among grown men. A pastime became a passion, and now as I enter my adulthood, a potential career.

Salmon contribute so much more connection to our world than the silvery threads that have trussed my life together. Salmon connect trophic levels, nutrient pathways, and separate ecosystems. Salmon also represent, in many ways, a very ugly and ongoing part of the settler-state abuse of power; and along the same thread, they serve as a crucial part of Indigenous experiences in the Pacific Northwest. None of us are separate from these systems and dynamics, both ecological and sociological. Within my own experiences with salmon, I have simultaneously contributed and worked within these schemes.

In biological ecology, salmon fall within many categories that describe their importance and scope of influence. Pacific salmon are categorized as both keystone species and ecosystem engineers (Gende et al. 2002). These designations describe the extent to

which they modify and impact their environment. Salmon, as ecosystem engineers, physically alter their habitats in a plethora of ways, engineering functional ecosystems that are supportive of other organisms. These roles largely describe their importance in their relative biological communities, but the particulars regarding how they achieve these roles is what has always amazed me.

When I spend time wandering the spawning grounds of salmon, their impact is visible to the eye. Mid-spawning season, creek banks will be littered with decay. Carcasses often lay in heaps where the river's current has tossed them, piles of white, flaking flesh, spillage of eggs and pools of milt for those who didn't plant their progeny before extinction. Eagles and gulls line the banks and the tops of spruces, waiting for a semi-fresh corpse to become accessible, tearing soft flesh when given the chance. Fish backs and tails break the surface often. Bursts of splashing can be heard as they take turns running up through the current. The rot of a successful spawn is detectable by all senses. The significance of this mass deposit of biological fuel is part of the reason salmon are so important to their ecological community.

Here, I dove into studies that quantify and describe the impact that salmon have on the environments around them, and by proxy, the role they serve as connectors. Studies and literature reviews have informed my research here.

This previously mentioned biological fuel, or the currency of the ecological economy, is energy in the form of nutrients. Nutrients like carbon, nitrogen, phosphorus, and other pivotal molecules and compounds are the basis by which salmon contribute energy to the larger system (Bilby et al 1996) . In this way, fish are food across trophic levels, from fungal colonies underground to top trophic predators (Gende et al. 2002, Janetski et al, 2008, Schindler et al 2003). Studies from coastal and stream ecological assessments (Schindler et al. 2003) that show the quantification of nutrient impacts of salmon (Bilby et al. 1996) provide documentation of this astounding influence.

The unique life history of salmonids allows them to shape a wide spectrum of environments, as they inhabit many throughout their lives. Marine, aquatic, and even terrestrial biomes in the Pacific Northwest are influenced by the nutrient contribution that salmon provide. Spawning fish eventually decompose into these vital nutrients, nourishing and sustaining the needs of their environment. The story of how chemical salmon traces have been found in trees highlights this influence: salmon are carried up river banks and into the forest by feasting bears, eagles, and foxes (Bilby et al. 1996, Gende et al. 2002).

Eventually, the sneaky mycelium of fungal colonies feast on the scraps, transporting aliments across their branching networks until they reach the roots of trees, where they've been detected by researchers (Abumrad & Krulwich). A similar saga occurs in the stream systems where salmon die after laying the conception of the next generation. Bodies break down and feed algae, plants, bacteria, and aquatic insects, the future food of the fry that will dart around these waters in preparation for the journey to the marine. Streams with active salmon runs have demonstrated more successful fish populations of other species as well,

owing to the nutrient and energy input provided by salmon (Janetski et al. 2008). Ultimately, these nutrients reach the marine environment. Estuaries where juvenile salmon feed benefit from this currency first; phytoplankton bloom, igniting a frenzied smorgasbord that works it's way up the food chain, back to my silvery friends. The term 'trophic cascade' aptly summarizes what can occur when water rich with salmon detritus reaches the metaphorical mouths of hungry algae. Whatever nutrients aren't immediately consumed may make their way out into the open ocean, spreading the influence of these spawners (Bilby et al. 1996). Molecules that once composed a fish will eventually be distributed through stream systems, into the earth, stretched into lignous trees, and even washed out to sea.

Salmon also subvert the constraints of trophic hierarchies. While there are five species of Pacific Salmon, each with a somewhat unique placemat at the ecosystemic dinner table, their influence on other systems and trophic levels is further extended by their life history. Aside from the nutrient dump contributed by spawning season, other life stages impact the systems and community around them. As salmon grow and develop from egg to adult fish, they occupy a distinct niche at each step, living in unique corners of the ecosystem and relying on particular species for food and services. A fry requires a different chemical environment than a smolt, a smolt different food than a juvenile, a juvenile different conditions than an adult. In this manner, as salmon develop throughout their lives, they create a diverse network within their ecosystem, having relied on, fed, and nutrified a plethora of niches.

Sometimes when I find myself in the presence of salmon returning home, the impact of these fish settles in my thoughts. While working on a salmon research and monitoring project with the Alaska Department of Fish and Game, I spent several days just watching. Working on a weir system on Lingít Aaní land, I often found myself lying on the boards of the weir walkway, watching fish work their way upstream below me. Although four of the five Pacific salmon species return to that particular stream system, my favorite to watch were the Coho. Sleek and wide bodies circled and surged in the lazy current below, sending schools of juvenile dollies darting. I was reminded of the power these fish have by watching them, and the influence and importance of their existence to our world.

Salmon are significant network connectors. Differing and adjacent biomes, trophic levels, niches, and other biological networks are all influenced by these fish. In their absence, habitats lack the robustness in species diversity and organismal health of other salmon-bearing systems (Janetski et al. 2008). Ecological resilience in the sustained return of salmon year after year confers a promise of continued input and stability. Understanding this scope of influence possessed by salmon may shed light upon the role they've played in the cultures of Indigenous people in the Pacific Northwest, and the manners through which they've been subverted as a tool of power by the white settler-state.

Salmon have long been an integral part of First Nation people's way of life. The landsI currently inhabit and benefit from are stolen from the Lummi, Nooksack, and Dena'ina people. My existence on these lands and access to the salmon that still return here are a direct result of the injustice of settler-colonialism. The lands that have been enriched and fed by these unique fish have been targeted by colonists for this wealth. Thus, the importance of salmon feels everclear in these contexts. The role of salmon ecologically to this region in many ways is the root of how they've been corrupted by settler colonialism. Salmon serve not only as a source of metaphorical and literal food to Indigenous people and culture (Lummi Nation, Eklutna Inc.), but also represent the auto-regenerative loot of extractive settler capital systems, resulting in systematic settler-state violence and land grabbing.

The importance of salmon to the Dena'ina people, the Lhaq'temish people of the Lummi Nation, and the Nooksack Nation, whose occupied land I've inhabited while my own experiences with salmon were shaped, is a necessary facet to this project. The works of

indigenous authors and scholars provide perspectives through which to analyze the role of salmon in settler disruptions, and its consequences. Utilizing these sources allows me to make assertions about the composite role of the Pacific salmon in the context of settler colonialism and how it's removal might have far-reaching consequences, considering the additional biological functions.

As a student of Western Washington University, I live on and benefit from the stolen land of the Lhaq'temish Lummi and Nooksack people. Salmon are an integral part of Lummi and Nooksack life. The Lummi tribe tells a story of the Salmon Woman, who gifts her children to their people to provide them with food when it's scarce. It's a story of interdependence, stewardship, and reciprocity between salmon and the Lummi people. The Lummi prepare the beds for the salmon as they return, and are never hungry because of their gifts. Sche'Lang'en is the concept of stewardship of land and place in Lummi culture. Lhaq'temish people historically have and continue to practice stewardship of salmon habitat and species, despite disruptions of land theft and colonist development that threaten the longevity of these practices. Continuation of traditional harvesting rights has also been a struggle for Lummi and Nooksack people. The Point Elliott treaty resulted in the 'exchange' of land for a continuation of Indigenous hunting and fishing rights. While the Lummi Nation reservation was created as a result, the Nooksack Tribe went unrecognized,

and were provided the option of joining the Lummi reservation. Instead, Nooksack leadership purchased homestead claims. Some of the requested claims were granted and recognized by the state and federal government (Nooksack Indian Tribe). Yet, despite ownership in the eyes of the settler-government, Nooksack and Lummi people have continued to be denied access to practice ancestral fishing and hunting rights. Nooksack people were unrecognized by the U.S. government until they formally won fishing rights in 1974 (Nooksack Tribe). Both the Lummi and Nooksack people and their leadership have continued to combat maltreatment of their ancestral land and the salmon that sustain it with comprehensive land management and salmon protection programs.

Living in the U.S. as a white person, separating myself from my role as a white settler is impossible. In this way, my experiences with salmon are inseparably linked to the violent removal of Indigenous autonomy.

Removal of salmon from Indigenous peoples via the damming of the Columbia River is described in Lindsey Scheinder's dissertation *Dammed by the State.* Additionally, sources by the Indigenous people inhabiting these affected areas and their relationships with

salmon develop an additional network through which to consider salmon in this work. Understanding these relationships and their cultural importance informs my work by helping me situate the consequences of salmon removal and destruction. Utilizing these sources allows me to make assertions about the composite role of the pacific salmon in the context of settler colonialism and how its removal might have far-reaching consequences, considering the additional biological functions.

Historically, damming of the sacred streams that salmon return to has been a very intentional move by white settlers to gain power. Diverting the waters used by Indigenous people allowed settlers to control integral resources, including salmon. The damming of the Columbia River Basin is just a single example of this dynamic. Settler government placement of dams on spawning grounds has cascading effects on the greater ecosystems that are affected by the presence of salmon, and on the Indigenous people that inhabit them. Damming on the Columbia began as early as 1933 with the Grand Coulee and dam. Since, hydroelectric projects as well as water diversion for irrigation has continued, threatening returning salmonids (Schneider 2016). Damage and disruption to these

ecosystems and species that rely on salmon for food and nutrients reveals the severity of this act. On the Columbia River, salmon returns are greatly reduced compared to historic accounts of their numbers, affecting Walla Walla, Yakima, and Umatilla people. Other development based on colonization of the lands surrounding the Columbia has further exacerbated these effects, dumping nutrients into a system that no longer has the biological components to translate this currency into usable material. A cascade of imbalance results (Schneider 2016).

Similar damming has occurred across the Pacific Northwest, including on the lands of the Dena'ina people in Alaska. Eklutna Lake, whose water is the source of the City of Anchorage's supply, used to be spawning grounds of Chinook, Sockeye, Coho, Pink, and Chum salmon. The water that comes out of my tap in the house I call home flows because of the removal of spawning grounds and the theft of Dena'ina land rights. Dena'ina people remember these runs, and have continued to feel the effects of their removal (Native Village of Eklutna). Since the dam's installation in 1929, the native salmon runs have been largely reduced, due to a restriction of spawning grounds and reduced water flow. That dam has only recently been removed, and the possibility of salmon returning to this tributary is in no way guaranteed (Native Village of Eklutna).

In order to understand the extent to which damming of salmon spawning streams has forcefully threatened Indigenous sovereignty, settler understanding of land and place should be interrogated. Settler removal of Indigenous access to salmon intentionally threatens historic ways of life. Settler colonialism does more than disrupt spatial scales of access and material relations with fish. Temporal relationships are also disrupted. William Vionot-Baron describes this effect in the Yupiaq Native villages on the Kuskokwim River of Southwest Alaska. Removal and restriction of fishing rights of Chinook salmon in Akiak, Alaska by colonial powers has disrupted temporal relations between the Yupiaq people and the land. To the Yupiaq people, Chinook salmon are viewed not simply as individuals of a resource population, but rather as knowing subjects with whom they reciprocally interact in relationships of exchange. And as Chinook populations decline, the state government has revoked fishing rights, and the temporal significance of these fish to the Indigenous people of Akiak is compromised (Vionot-Baron 2020).

Chinook have long served as temporal guides in the Yupiaq way of life. Salmon are central to non-colonist timekeeping, and their progression through habitats due their life history dictates this importance. Vionot-Baron asserts that settler management of fisheries populations has resulted in a rendering of Indigenous peoples as temporally absent from consideration, displacing them into settler modes of timekeeping (Vionot-Baron 2020). Such interruptions by settler governments to Indigenous access to fish is not only a semblance of erasure of Indigenous peoples, but also a lack of consideration of the ways in which reciprocal temporal relationships exist between fish and Yupiaq people, aside from material expressions. Yupiaq time has ancestrally been based on the seasonality of fish, and daily timekeeping often consists of fish-related tasks. Removal of this way of life and disruption of this temporal generation has consequences, and represents another form of settler disruptions.

Through investigating this work, and the works of other Indigenous scholars, the ways in which definitions of land, place, and hierarchies of beings have permeated my own perceptions is apparent to me. As Schneider describes, settler colonialism has shaped my notions of land and place itself. When I think back to the times I've witnessed the impact of salmon in their return to their natal streams, how was I thinking about my place within that system? When I wade up streams with returning salmon surging away from the splashes of my legs in the water, how have I envisioned my role in that place? How often have I recognized the mutual relationship that exists here? Ideas of ownership and objectivity of land permeate my perception of this relationship.

Indigenous understandings of stewardship, like the Lummi peoples concept of Schelangen, highlight the difference between colonist concepts of place and those of Indigenous peoples. Centering salmon in this discussion, these differences are stark. Within the settler colonial framework, white settlers largely have viewed salmon as a resource for harvest, and even as a tool that can be utilized to further colonize and capitalize. As formerly mentioned, intentional destruction of salmon habitat and general restriction of

Indigenous access to fish are calculated aspects of perceived settler relationships with this land.

This colonist-based thought permeates even mainstream 'environmentalism' that I have participated in; stewardship in this context still centralizes the settler. I find my understanding of place and nature shaped by authors like Wendell Berry, Richard Nelson, and Hank Leftner. White men, operating in colonial roles with seemingly unlimited access to stolen land. Privilege drips from their stories of stewardship and fumblings with Indigenous words for the lands that they inhabit and colonize. The belief that we must conserve salmon as resources in order to continue to enjoy them focuses on the colonist. We are not taught to consider the possibility of mutualism of our and salmon's place in these systems.

Indigenous and feminist scholars like Tuhiwai Smith, Patricia Hill Collins, Eve Tuck & K.W. Yang have made clear the gatekeeping and colonization of scholarship and academia in Western thought. Indigenous epistemologies demonstrate that settler colonial powers infiltrate our systems of knowledge (Smith, Tuck & Yang). It's necessary to consider how

the precedents of what knowledge is available can impact our world view, and has certainly prejudiced my own (Tuck & Yang). The culture of imperialism has persisted in my mindset because it benefits me. The violence that has removed Indigenous peoples from the land and has greatly impacted the sustainability of salmon life is in many ways to my benefit. Confronting that truth is an important step in dismantling my role in this system, but is far from the solution.

Although restricted access to salmon has resulted in a loss of sovereignty over place and practice in some regard, salmon have also simultaneously served as a tool for preservation of culture. The N'chi-Wána, or Columbia River, has been and continues to be fished by the Yakima, Umatilla, and Walla Walla people despite its damming. The imposition of 'development' and policy restriction of Indigenous fishing rights have greatly altered this riverine cornucopia, and still native fishing practices and culture persists (Schneider). Similarly, on Lummi and Nooksack lands, Indigenous people exercise resistance and resilience in continuation of fishing practices. The Lhaq'temish Foundation, a program operating within the Lummi tribe, demonstrates this persistence of practice despite oppressive forces of settler powers. This program represents a continuation of historic fishing rights, and a passing of knowledge to the younger generations. Part of the Lhaq'temish Foundation's objectives is the preservation of historic practices, including the 'Paddle to Lummi', which represent the Lummi people's ancestral practice of following salmon across the Salish Sea (Lhaq'temish Foundation). The Nooksack Tribe has also resisted restricted access to their ancestral lands and fishing rights. The establishment of Washington state recognized Nooksack land demonstrates this story; Indigenous leaders were inventive in securing access when the state government refused to recognize their land claims, using homestead claims and trust titles as formerly mentioned. Additionally, Nooksack people participated in the 1974 *United States v. Washington* case to retain fishing rights in the eyes of the state government. The Natural and Cultural Resources Department of the Nooksack Tribe pairs cultural and stewardship practices to protect traditions (Nooksack Indian Tribe).

In some capacity, resistance to the oppressive nature of settler power is demonstrated in the form of resilience–existence and continuance of practice in spaces that were designed to suppress. (Redmond xvi, Baxter et al. 96). Still, relying on reacquisition of rights to land and harvest still centers settler-colonial logic. These "politics of recognition" limits Indigenous sovereignty by outlining its existence within settler state frameworks, rather than dismantling the state as a path towards sovereignty (Schneider, 7). Land and fish are still considered a physical resource to be divided and managed. In discussing utilizing Indigenous fishing as a path towards decolonization, Schneider asserts that decentralizing the settler logic and considering fishing as a form of food production rather than a legal right is part of regaining sovereignty for Indigenous people in the Pacific Northwest (Schneider).

The same connecting role carried out by salmon applies to my own life and lived experiences. They've fed me, connected me with place and land, and also been the catalyst in my personal journey of unlearning and ally-ship. When my fillet knife divides jewel-toned flesh from bone, and I wash scales from my hands, I'm reminded of the connection this fish provides.

Fish leap from the surface, breaking out above waves. Ripples radiate outward. A lure evaded, tossed from a toothy mouth, means one more empty spot in the freezer, another meal for a seal, a few hundred more fry darting in a stream, or the tastiest of soil for a spongy fungi. These ripples extend seemingly endlessly, touching every corner of my possibilities. And so it goes on.

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